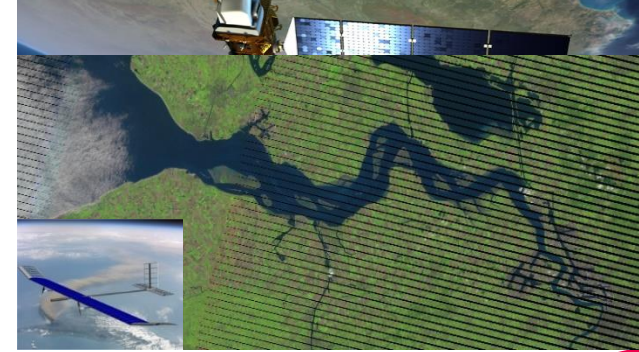


Image Archiving and Processing Chain GDI-Flanders, catalyzing innovation in operations

Beeldverwerkingsketen (BVK)

Remote sensing resources

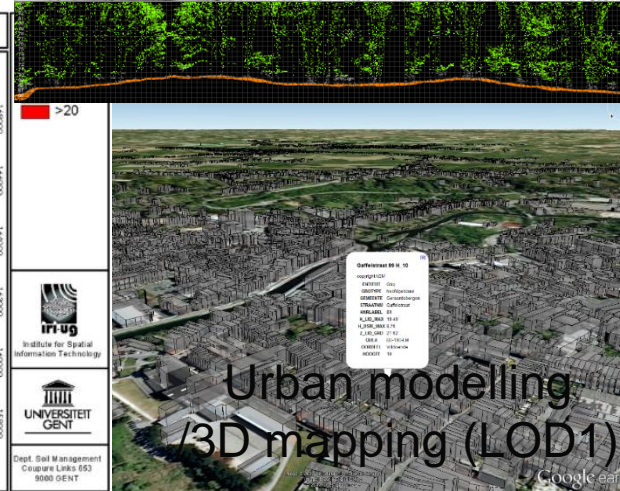
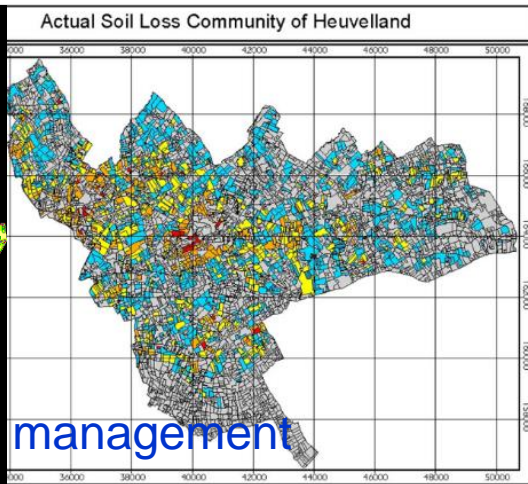
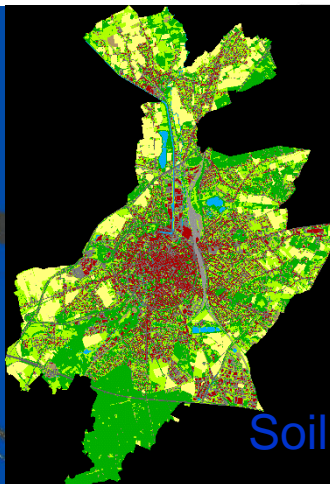
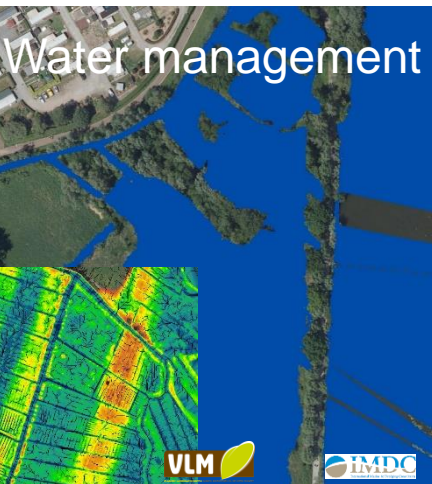
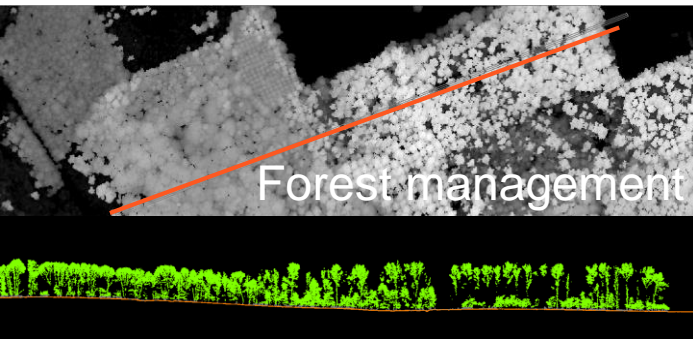


- Increasing availability of new platform/sensor combinations
- Growing interest for integration of RS data in an operational setting for monitoring on a local to regional scale



Remote sensing in operations

- Object recognition/extraction
- Modelling/monitoring
-



Remote sensing in operations

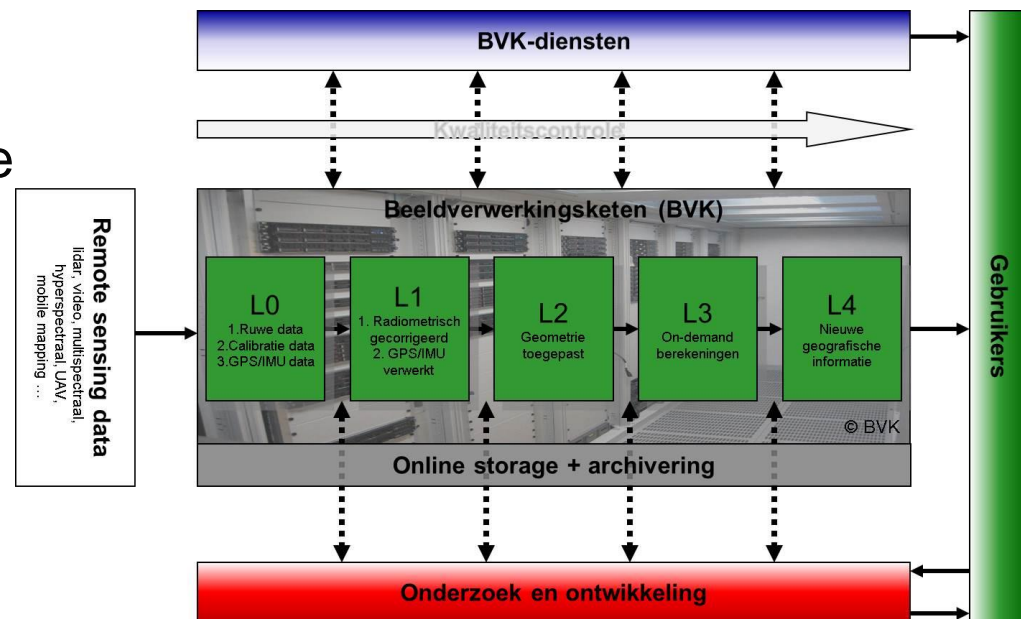
Comes with some challenges :

- Automated processing of ever increasing data volumes
- Keep up automatisation with innovation
 - Research for new processing algorithms
 - Functional testing of new processing algorithms in operational setting
 - Functional testing of new sensors in an operational setting
- Keep up demand driven added-value applications with innovation
- Need for framework & coöperation to facilitate such an innovation driven integration of remote sensing data for operational purposes

Remote sensing in operations

Building a facilitating framework : BeeldVerwerkingsKeten (BVK)

- Coöperation : AGIV & VITO/TAP (signed by Gov. of Flanders)
- Encompassing :
 - Hard/software system solutions
 - Central safe online storage
 - Managed offline archiving
 - Integration of AGIV GEOSecure
 - Algorithmical workflows
 - User applications
 - Data hosting services
 - OGC services

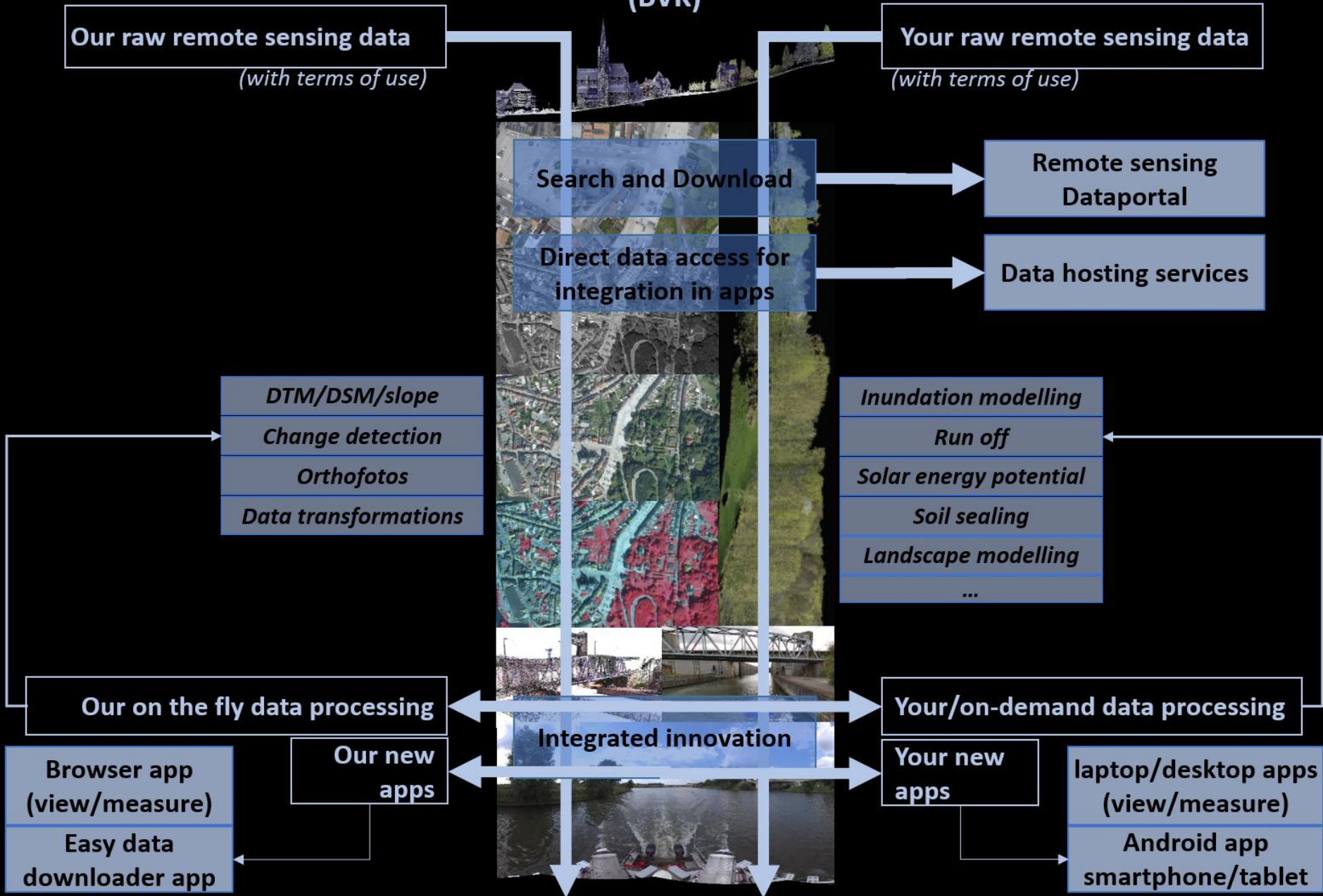


Remote sensing in operations

- Enabling :
 - Distribution of RS data to GDI-Flanders/third parties
 - Fully automated processing
 - On demand production & distribution of geo information
- Goal:
 - Further develop and exploit the BVK
 - Fully implement the ability of the BVK as catalyzer for :
 - Research
 - Interagency coöperation
 - Coöperation with value-added providers



Integrated image archiving and processing system (BVK)



BVK – Search and Download

BVK – Remote Sensing Portal

- Central distribution point for all available :

- Remote sensing resources
- Applications
- Technical guidelines

- Available resources (11/2014) :

- Multispectral (20 – 40 cm) aerial images
- Multispectral (8 – 10 cm) aerial images
- Aerial LiDAR pointclouds (2000 – 2014)
- Panoramic images (waterways/roads)
- Terrestrial LiDAR pointclouds (waterways)
- ...

<https://remotesensing.agiv.be/>



Remote sensing bron data: zoeken, bekijken, downloaden en inladen

De BVK GDI-Vlaanderen (2012 – 2015), een gezamenlijke realisatie van het AGIV en het VITO Departement Teledetectie en Atmosferische Processen (VITO-TAP), is een instrument om geo-innovatie binnen het algemene kader van de GDI-Vlaanderen te stimuleren. Hierbij is het openstellen via netwerkdiensten van geo-spatiale data essentieel. Afhankelijk van de aard van de brondata wordt een gepaste applicatie of dienst ter beschikking gesteld.

Zoeken en downloaden



Ruwe beelden
Multispectrale ruwe beelden
(air- & spaceborne)

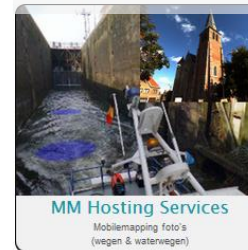


LiDAR
LiDAR puntenwolven & DTM, DSM,
hillshade, slope, ... per tiles



Afgeleide producten
Orthofotomosaiek, Groenkaart, Boswijzer,
DSM, DTM, ... per kaartblad

Zoeken en inladen



MM Hosting Services
Mobilemapping foto's
(wegen & waterwegen)

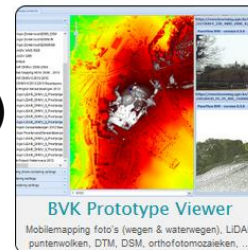


LiDAR Hosting Services
LiDAR puntenwolven
(airborne & terrestrisch)



Andere Hosting Services
Afgeleide informatie (DTM, DSM,
hillshade, slope, ...) per tile

Visualiseren en meten



BVK Prototype Viewer
Mobilemapping foto's (wegen & waterwegen), LiDAR
puntenwolven, DTM, DSM, orthofotomosaieken, ...



AGIV MM Viewer
Mobilemapping foto's
(wegen)



Geopunt Viewer
Geografische
informatie

BVK – Search and Download

BVK – Remote Sensing Download Portal

- Bulk download of raw multispectral images and their exterior orientation files
- Members of GDI-Flanders automatically authorised

Agentschap voor Geografische Informatie Vlaanderen

Image Products
Information
Terms of use source data

Flights

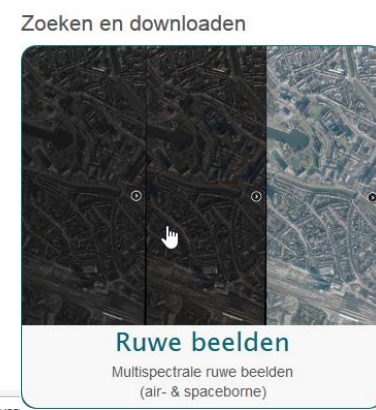
Flight name: All flights
minX: 119117 maxX: 127649 minY: 156585 maxY: 163564

Flight ID	Flight name	# Images
39	AGIV ATF295 Bree PAN 2011	318
59	AGIV ATF295 Bree RGB PanSharp 2011	318
49	AGIV ATF295 Bree RGBI RAW 2011	318
104	AGIV ATF305 Ingelmunster PAN 2012	157
106	AGIV ATF305 Ingelmunster RGBI PanSharp 2012	
105	AGIV ATF305 Ingelmunster RGBI RAW 2012	
107	AGIV ATF308 Koekelare PAN 2012	
109	AGIV ATF308 Koekelare RGBI PanSharp 2012	
108	AGIV ATF308 Koekelare RGBI RAW 2012	
110	AGIV ATF309 Kortemark PAN 2012	
112	AGIV ATF309 Kortemark RGBI PanSharp 2012	
111	AGIV ATF309 Kortemark RGBI RAW 2012	
80	AGIV ATF311 Leopoldsburg PAN 2011	
82	AGIV ATF311 Leopoldsburg RGBI PanSharp 2011	
81	AGIV ATF311 Leopoldsburg RGBI RAW 2011	
89	AGIV ATF314 Meeuwen-Gruitrode PAN 2011	
91	AGIV ATF314 Meeuwen-Gruitrode RGBI PanSharp 2011	
90	AGIV ATF314 Meeuwen-Gruitrode RGBI RAW 2011	
95	AGIV ATF316 Overpelt PAN 2011	
97	AGIV ATF316 Overpelt RGBI PanSharp 2011	
96	AGIV ATF316 Overpelt RGBI RAW 2011	
40	AGIV ATF326 WortegemPetegem PAN 2011	
60	AGIV ATF326 WortegemPetegem RGB PanSharp 2011	242
50	AGIV ATF326 WortegemPetegem RGBI RAW 2011	242
119	AGIV ATF327 Jilkerke PAN 2012	337

Select a predefined bounding box

Gemeente: Galmaarden
Edegem
Eeklo
Erpe-Mere
Essen
Evergem
Galmaarden
Gavere
Geel
Geetbets
Genk
Gent
Geraardsbergen
Gingelom
Gistel
Glabbeek
Gooik
Grimbergen
Grobbendonk
Haacht
Haaltert

page 1 of 10

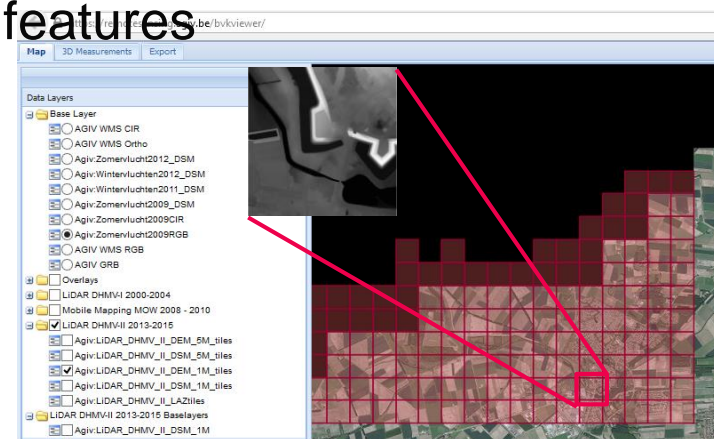


<https://remotesensing.agiv.be/DownloadPortal/>

BVK – Direct data access for integration

BVK – Data Hosting Services

- For bulk download of raw & processed data
- For integration of the data into your own applications
 - WMS request the LiDAR tiles as a bitmap
 - get map/get feature info
 - WFS request get underlying attributes of the features
 - DescribeFeatureType
 - Consumers of the WFS
 - Pick up those attributes
 - Perform a HTTP GET/POST to get the data
 - URL : <https://remotesensing.agiv.be/data/>



<https://remotesensing.agiv.be/data/>
 LIDAR DHMV 2/P3/ATL12306/DTM 01/DHMV 2 Kb06 127500 218500 DTM 1m.tif

BVK – Integrated innovation

BVK - DataDownloadapplication

- For bulk download of raw & processed data
- Members of GDI-Flanders automatically authorised

Zoeken en downloaden



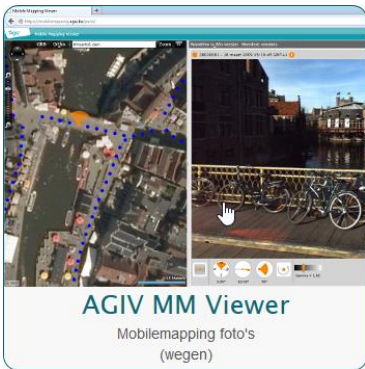
Download
DTM tiles
DSM tiles
LAZ files
...

BVK DataDownloadApplicationv2.1

BVK – Integrated innovation

Visualiseren en meten

Visualiseren en meten

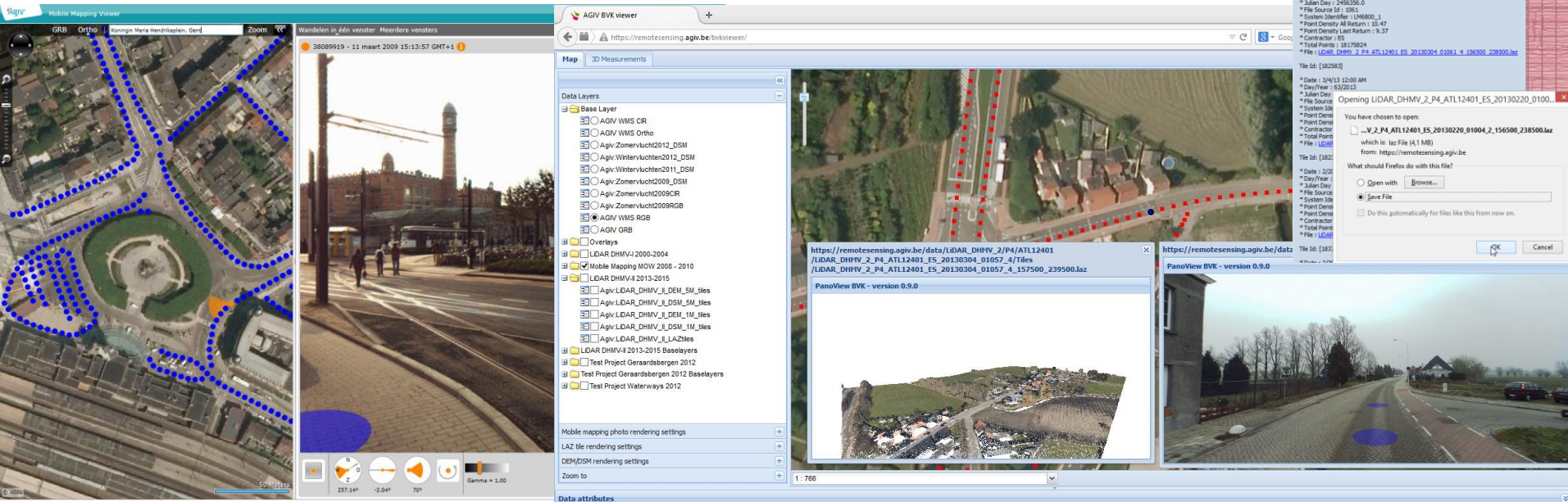


BVK – application hosting

- Panoramic/3D viewing of data remotely accessed
- Measuring in the remotely accessed data
- Prototyping new visualisation developments
- Selecting/download data tiles (not for bulk download !)



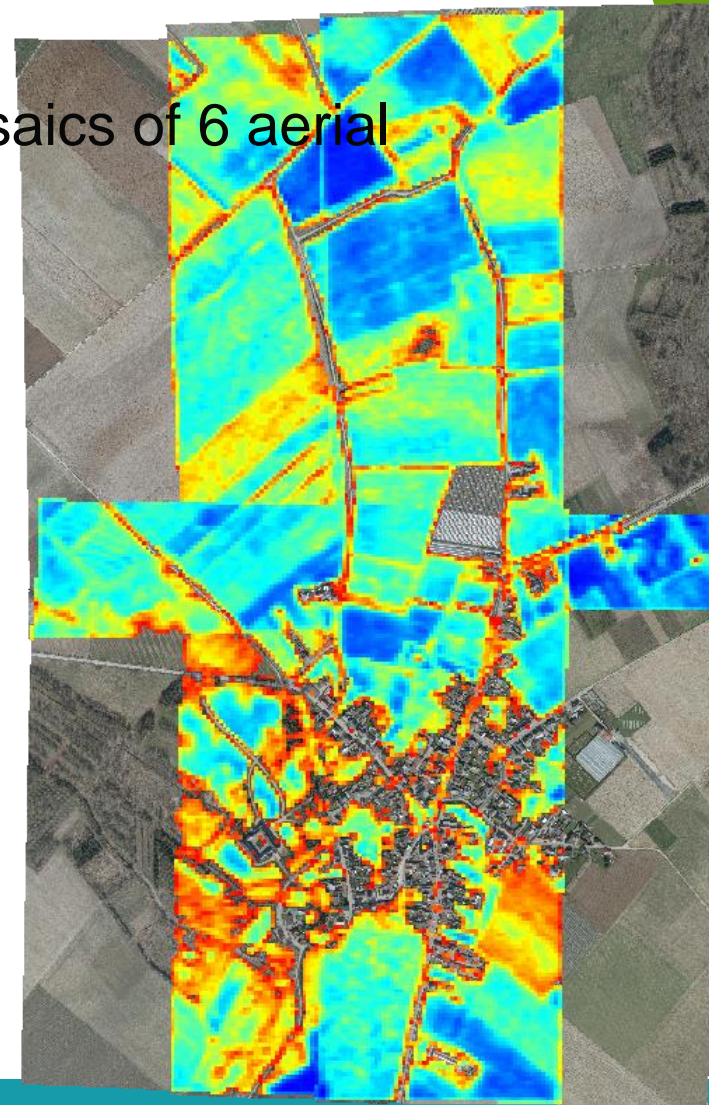
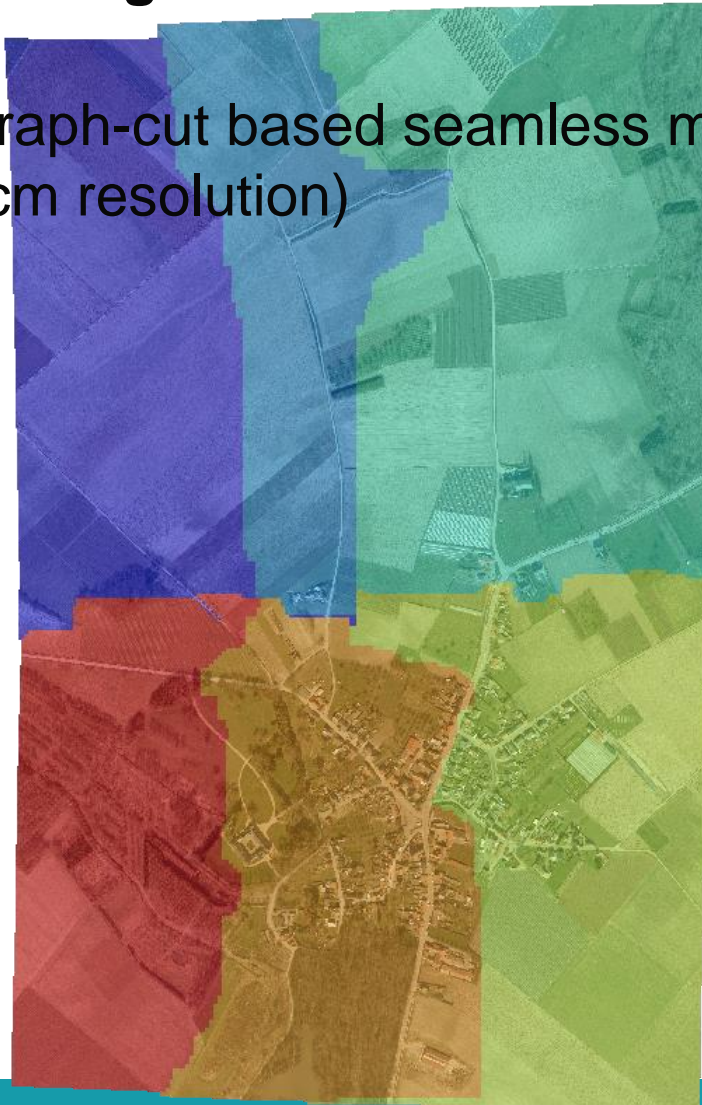
<https://remotesensing.agiv.be/bvkviewer/>



BVK – Integrated innovation

BVK – Processing workflow : seamless mosaics

- automatic graph-cut based seamless mosaics of 6 aerial images (10cm resolution)



BVK – Integrated innovation

BVK – Processing workflow : automatic change detection

segmentation and rule-based classification for AGIV-GRB change detection

The screenshot displays the QGIS 2.0.1-Dufour interface. The main window shows an aerial photograph of a residential area with overlaid building footprints. Several buildings are highlighted with blue circles, and one is highlighted with a red circle. A 'Identify Results' dialog box is open, showing the following data for the selected feature:

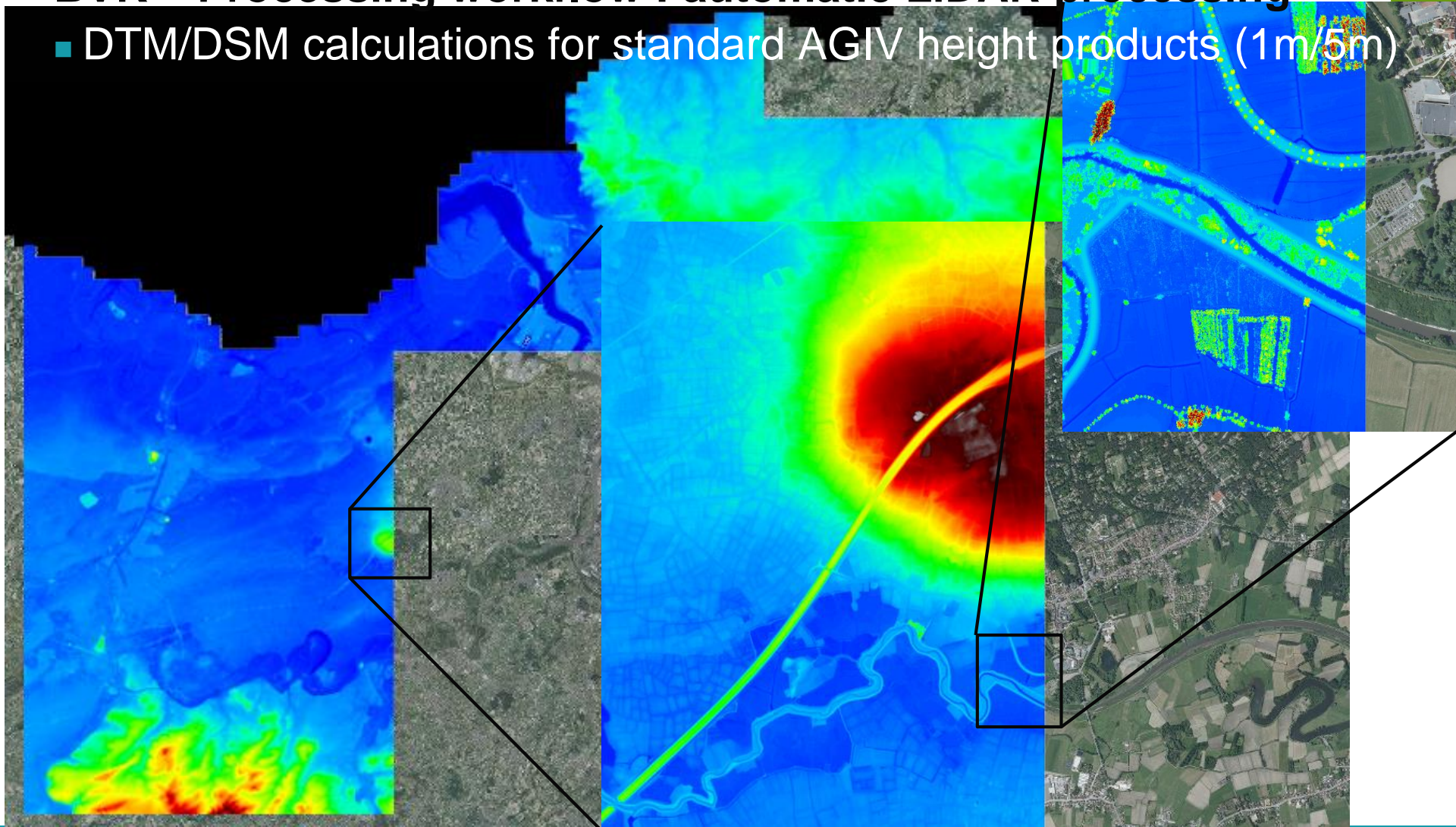
Feature	Value
0	Nieuwbouw
ID	187
(Actions)	
(Derived)	
- bouwht	
- bechdatum	2014-05-26
- ClassID	NieuwbouwRenovatie
- EPSG	31370
- ID	187
- ID_1	0
- oorzaak	BVKMUT
- verduid	verbouwing hoofdgebouw BVKMUT
- vstidatum	2013-03-05

The interface also shows a layer list on the left with various layers like 'adp', 'HOVE_TestRun 17106', 'Measures', 'new_structure_measures', 'Sloop', 'Nieuwbouw', 'demolished_structure_measures', 'GRB', 'gbg', 'gba', 'GRB_MaskLayers', 'knw', 'ano', 'wbn', 'lbpc', 'wtz', and 'Orthos'. The bottom status bar shows the coordinate '157337,0,204911.3', scale '1:763', and EPSG:31370.

BVK – Integrated innovation

BVK – Processing workflow : automatic LiDAR processing

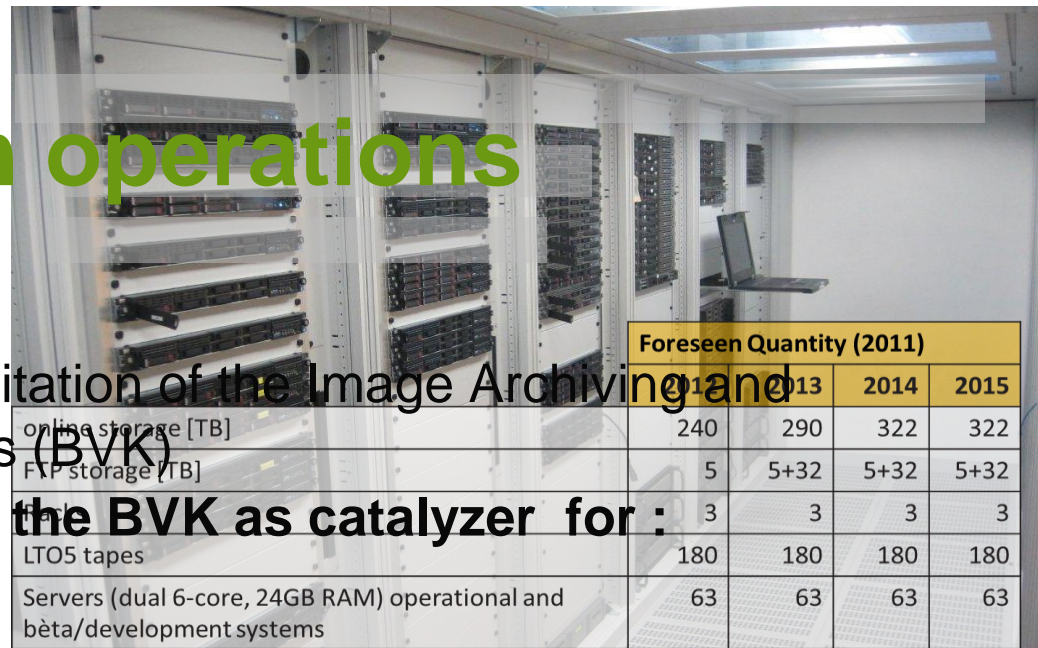
- DTM/DSM calculations for standard AGIV height products (1m/5m)



Remote sensing in operations

■ Goal:

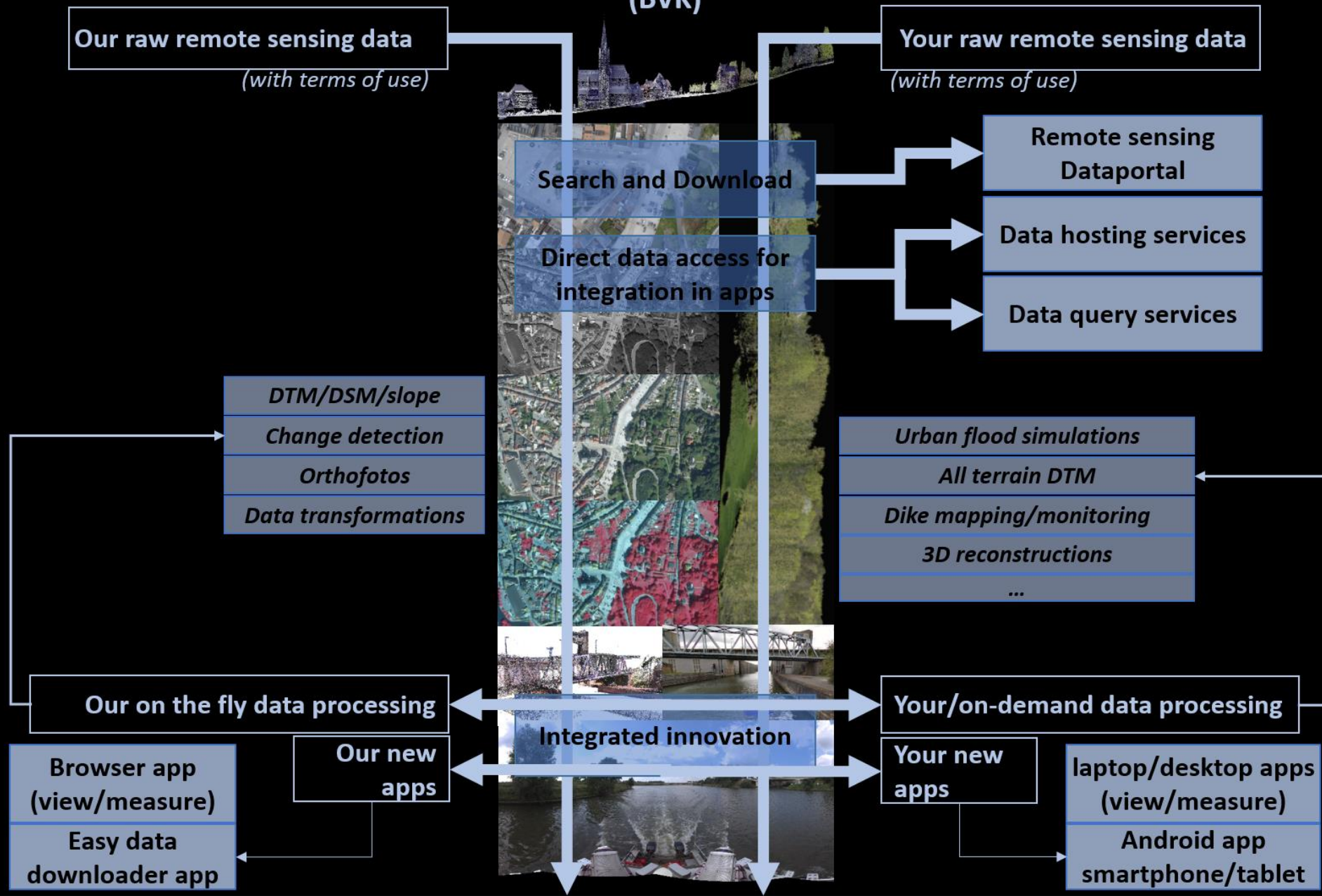
- Further development and exploitation of the Image Archiving and Processing Chain GDI-Flanders (BVK)
- Fully implement the ability of the BVK as catalyzer for :
 - Research
 - Interagency coöperation
 - Coöperation with value-added providers



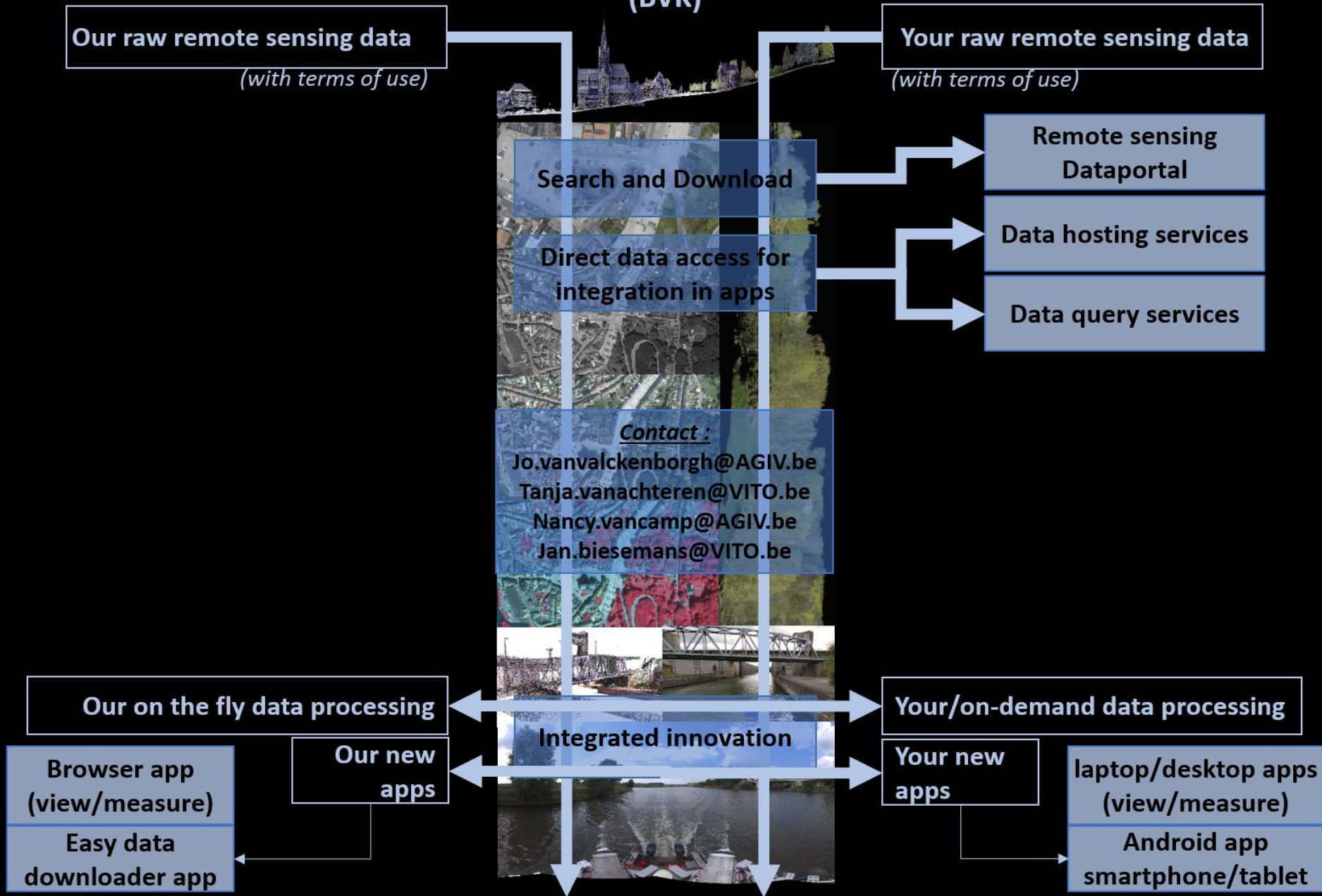
	Foreseen Quantity (2011)			
	2011	2013	2014	2015
online storage [TB]	240	290	322	322
FTP storage [TB]	5	5+32	5+32	5+32
total	3	3	3	3
LTO5 tapes	180	180	180	180
Servers (dual 6-core, 24GB RAM) operational and beta/development systems	63	63	63	63

- Central, safe storage and availability of remote sensing data that is of interest to many partners
- Interpartner driven product improvement based on combining those data
- Interpartner driven development of dedicated workflows
- Interpartner driven development of dedicated services

Integrated image archiving and processing system (BVK)



Integrated image archiving and processing system (BVK)





Remote Sensing in operations

- Acquisition of RS resource data follows the terms of use that accompany each resource. Those terms are being imposed through the AGIV security system (GeoSecure).
 - Based on the type of resource
 - Terms of use/ownership (f(time) or f(time;space))
 - User profiles

